UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
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DALLAS TEXAS 75202-2733

October 14, 2016

Sent via Electronic Mail

Mr. Marc R. Ferries, P.E.
Project Coordinator
Project Navigator, Ltd.
15990 N. Barkers Landing Rd, Suite 325
Houston, Texas 77079

Re: Draft Baseline Human Health Risk Assessment
Draft Screening Level Ecological Risk Assessment
Brine Service Company Superfund Site, Corpus Christi, Texas
TX0000605264/TCEQ ID SUP 100 (06JY RI)

Dear Mr. Ferries:

The U.S. Environmental Protection Agency (EPA), the Texas Commission on Environmental Quality (TCEQ), and the National Trustees have reviewed the draft Baseline Human Health Risk Assessment and draft Screening Level Ecological Risk Assessment documents dated June 2014, for the Brine Service Company Superfund Site, Corpus Christi, Texas. These documents were submitted to the agencies for review under the signature of Project Navigator, Ltd., on behalf of Respondents to the Administrative Order on Consent (AOC) finalized on October 21, 2009, and amended on November 17, 2009.

The EPA tentatively approves the draft Baseline Human Health Risk Assessment and draft Screening Level Ecological Risk Assessment documents with specified conditions outlined in accordance with Section X, Paragraph, 41(b), of the AOC. The specified conditions that need to be addressed have been included as an enclosure to this letter. Please address the specified conditions and transmit a response within fourteen (14) days of receipt of this letter. The response may consist of approvable documents or a schedule for submission of approvable documents. The TCEQ and National Trustee comments are incorporated in the enclosure.

Based on discussions from the October 3, 2016 meeting between the Brine Group and the agencies, the Group planned to submit a work planning document for evaluation of indoor air vapor intrusion potential of the buildings currently on the Site. The Group indicated its preference to include the evaluation of indoor air vapor intrusion potential as an addendum to the Remedial Investigation Report and Baseline

Human Health Risk Assessment in its draft meeting notes for the October 3rd meeting. Please submit this work planning document within 30 days of receipt of this letter or include a time frame for submittal of the indoor air vapor intrusion potential work planning document with the schedule described in the previous paragraph.

Should you have any questions or need any additional information please do not hesitate to contact me at (214) 665-7525.

Sincerely yours,

Laura Stankosky
Remedial Project Manager

cc: Mr. Roberto Puga, P.G. Project Navigator, LTD
Ms. Anna Lund, Texas Commission on Environmental Quality
Mr. Barry Forsythe, U.S. Fish and Wildlife Service
Ms. Clare Lee, U.S. Fish and Wildlife Service

Conditions Required for Draft Baseline Human Health Risk Assessment and Draft Screening Level Ecological Risk Assessment

General Conditions – The General Conditions listed below apply to both risk assessment documents as well as the draft Remedial Investigation (RI).

1. Project Design – As described in the Quality Assurance Project Plan (QAPP) for the Brine Service Company Superfund Site (August 2010), the goal of the project is to characterize the Site with respect to the: 1. nature and extent of contamination; 2. risk to human health and the environment; and 3. treatability of waste materials. Statements made in the RI and risk assessments must be supported by the data. EPA recommends the Data Quality Objective (DQO) process as the systematic planning tool when data are collected during the Remedial Investigation/Feasibility Study (RI/FS). The seven-step DQO process, outlined in Section A.6 of the QAPP, is a planning approach to develop sampling designs for data collection activities that support decision-making. Principal study questions to be answered by the project are presented in Section A.6.2.1 of the QAPP and decision statements to be addressed by the project are presented in Section A. 6.2.3. Answering the principal study questions and addressing the decision statements should be central to all RI documents. The project was designed to answer the principal study questions and address the decision statements, not to determine if contamination was associated activities from the Brine Service Company or were the result of other historical activities that occurred at the Site. Please revise documents to follow the process outlined in the QAPP and in the RI/FS Work Plan for the Brine Service Company Superfund Site (August 2010).
2. State Environmental Agency – Please update the documents and references to ref1ect the correct agency name for the State based on the information provided below. In addition, if utilized in the report, please add the corresponding agency names to the list of acronyms. In 1977, the agency was known as the Texas Department of Water Resources (TDWR). This agency was split into the Texas Water Commission (TWC) and the Texas Water Development Board (TWDB) in 1985. The TWC and the Texas Air Control Board (TACB) were combined to form the Texas Natural Resource Conservation Commission (TNRCC) in 1993. TNRCC's name was changed to the Texas Commission on Environmental Quality (TCEQ) in 2002.
3. Background – Background values and maximum values as background values should not be incorporated into screening values. If there is risk to the environment or to a community from background values, this should described in the documents. Incorporating background into screening values implies that these are safe concentrations. Please instead communicate that some risk may exist but that it comes from background. Please compare the chemicals of potential concern (COPCs) that exceed screening values to background and explain in the text that some risk may exist and is due to background concentrations. Please refer to Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites (EPA 2002) for additional information on these two issues. Please correct throughout the documents. For example from the draft RI:
    a. Section 5.5.2, page 5-18 to 5-19: The background concentrations were compared to screening criteria. This is irrelevant to the risk assessment. The question that needs to be answered is do the background concentrations exceed the concentrations of the COPCs which exceed screening criteria. If the answer is no then that COPC must be retained for evaluation in the risk assessment unless enough information are available to make a risk management decision using existing data.
    b. Section 5.5.5, page 5-20, below third bullet: It states “3&4 methoxyphenol concentrations ranging from 0.015 to 0.14 exceed screening criteria in 33% of samples. This is comparable to the upstream concentration range of .0073 to .076 in background samples.”

This statement is not accurate. There is greater than an order of magnitude difference in the maximum value for 3&4 methoxyphenol and in the background concentration. EPA guidance on background states that a statistical comparison between background and site concentrations should be done. If site values are higher than background then the COPC cannot be eliminated based on background.

4. North Pit – The documents describe that based on the RI findings the North Pit does not contain waste material. The agencies remain in disagreement on this issue. While the North Pit contents may consist mostly of fill material with gravel, analytical data and lithologic descriptions appear to support potential use of the North Pit for waste disposal (e.g., NPSB07 – "black, soft, smooth, sludge-like material" and NPSB09 – "black discoloration, smooth 'sludge-like' material"). Additionally, the documents describe historical use of the North Pit as a storm water overflow structure to the South Pit. Please revise this statement throughout the RI and risk assessment documents. EPA recommends implementing trenching within the areas of the North Pit where analytical data and lithological data may indicate that the North Pit was potentially used for waste disposal or as an overflow structure from the South Pit.
5. Upper Transmissive Unit – EPA agrees that the Upper Transmissive Unit (UTU) is discontinuous across the Site. EPA disagrees that very stiff to hard clay that exists beneath the UTU is continuous across the Site and or that it would serve to act as an aquitard. While some boring and monitoring well logs descriptions do indicate that the UTU is underlain by very stiff to hard clay, the logs do not provide enough information to indicate that the very stiff to hard clay is continuous across the Site or support that the average thickness of this clay layer is 13 feet. The boring and monitoring well logs describe high angle fractures, possibly slickensided, abundant sand seams, some sandy clay seams within the very stiff to hard clay interval; descriptions indicating possible routes from the UTU to the Secondary Transmissive Unit (STU). Additionally, there are 31 instances of flowing sands described in the boring and monitoring well logs; some of the very stiff to hard clay layers are underlain by flowing sands. Approximately 10 instances where flowing sands are described at less than 20 feet bgs. Please revise the documents accordingly.

Draft Baseline Human Health Risk Assessment (BHHRA)

General Conditions

1. Total Petroleum Hydrocarbons (TPH) - Note that Texas Risk Reduction Program (TRRP)-27 outlines the procedures for development of human health protective concentration levels (PCLs) for Total Petroleum Hydrocarbon (TPH) mixtures, which may be useful in addressing waste material and soils. The development of TPH PCLs is dependent on the composition of the petroleum hydrocarbon product since different hydrocarbon products have different compositions. Information and guidance contained in TRRP-27 could be applicable to Section 8.0, LNAPL Qualitative Assessment.
2. The TCEQ Toxicology Division (TD) reviewed the Baseline Human Health Risk Assessment Report (BHHRA) for the Brine Service Company Superfund. Although conducted under EPA guidance (e.g., Risk Assessment Guidance for Superfund or RAGS), TD reviewed the BHHRA to ensure consistency with the TRRP rule and any applicable TRRP guidance. When TD reviews BHHRAs for federal superfund sites under TRRP, sometimes differences exist between EPA and TCEQ conclusions regarding the chemicals in an environmental medium which should be addressed by remedial action. Frequently, contributing factors to this are differences in the receptors/exposure parameters evaluated by EPA versus those evaluated under TRRP (e.g., on-site current/future construction worker, on-site current/future indoor worker, on-site current/future

maintenance worker; and on-site current/future adolescent trespasser versus TRRP commercial/industrial worker). Other differences may also contribute to differing conclusions between US EPA and TCEQ regarding chemicals/media which need to be addressed (e.g., differences in target risk/hazard levels, surface soil definitions, exposure areas).

Therefore, TD attempted to limit comments to those instances where such differences had a significant effect on the conduct or conclusions of the BHHRA or were important for the determination of health protectiveness as evaluated under TRRP. Potential "hot spots" with particularly elevated soil concentrations and a potential for current or future preferential exposure over an area smaller than the exposure area evaluated in the BHHRA should be considered in whatever actions are taken (e.g., cleanup) consistent with §350.51(1)(5) of TRRP, especially considering that the soil sampling data in Figure 3 were taken from a larger area than TRRP default exposure areas for commercial/industrial land use (see §350.51(1)(3) and (4)). However, in addition to the cumulative risk and hazard considerations discussed above and in the BHHRA, under TRRP individual-chemical target risk and hazard often trigger action (e.g., cleanup, control).

In addition to the areas identified by the BHHRA as definitely warranting action (i.e., light nonaqueous phase liquids (LNAPL) and waste materials in the south pit exposure area, groundwater in the upper and second transmissive units in the off-site exposure area, groundwater in the upper and second transmissive units in the south pit exposure area), again, for many areas/media the BHHRA indicates that a risk management decision must be made on whether to evaluate remedial alternatives where excess risk is in the 1E-06 to 1E-04 range or there is an hazard index (HI) > 1. However, based on available BHHRA surface soil (0-2 feet bgs) and subsurface soil (> 2-10 feet bgs) maximum concentrations in BHHRA Tables 3.1 and 3.2 (south pit) and Tables 3·5 and 3.6 (north pit), some media/chemicals could trigger action under TRRP based on direct contact individual-chemical target risk and hazard exceedances for a commercial/industrial worker including:

a) South Pit – mercury and benzo(a)pyrene in surface/subsurface soil for the current/future worker (Tables 3.1 and 3.2);
b) North Pit – lead and mercury in surface/subsurface soil for the current/future worker (Tables 3·5 and 3.6); and
c) East Ditch Sediment – benzo(a)pyrene in sediment if sediment is considered as surface soil.

Specific Conditions

1. Executive Summary, Page iii – The first paragraph under the “Findings” heading includes a numbered list. The potential for soil gas to migrate into indoor air space should be included with the media that presents a risk. Please revise. The soil gas levels near the Adult Video Store and the Robert’s Equipment building are elevated which warrants further investigation for vapor intrusion.
2. Section 2.1, Page 2-1 – The third paragraph in this section states that data collected from the Phase I RI formed the basis for the screening level human health risk assessment. Additional samples were collected during Phase II of the RI investigation and should also be included and evaluated in the risk assessment. Please correct the statement or further clarify that Phase I and Phase II sample results were used in the risk assessment.
3. Section 2.4.1, Page 2-2 – The second paragraph in this section describes wells identified on adjacent properties within a 0.5 mile radius. Please indicate if any drinking water wells were

identified at the adjacent facilities. Please provide a figure with the 12 wells described in this section that appear to remain active. Additionally, please summarize how these wells are used.

4. Section 2.5, Page 2-3 – Item 3 in the numbered list describes black discolored material identified in the North Pit soil borings. Please identify the black discolored material in the North Pit. Please provide a comparison to sampling data in North Pit borings where black discolored material was located. Please explain why the area between the North Pit and the East Ditch was not delineated.
5. Section 2.5, Page 2-3 – Please summarize detections above screening levels in the UTU and STU.
6. Section 2.9, Page 2.6 – Based on the results of the soil gas data, please evaluate indoor air vapor intrusion potential utilizing the recently finalized vapor intrusion guidance (Office of Solid Waste and Emergency Response (OSWER) Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air, OSWER Publication 9200.2-154; and 2) the Technical Guide for Addressing Petroleum Vapor Intrusion at Leaking Underground Storage Tank Sites, EPA 510-R-15-001). Any indoor air samples collected should be evaluated for individual constituents rather than relying on TPH values.
7. Section 3.1, Page 3-1 – The first paragraph indicates that LNAPL at the Site has characteristics of non-migrating LNAPL. Please provide additional information to support this claim.
8. Section 3.2, Page 3-1 – Listed item 1 states, "Subsurface soil delineation is complete around the South Pit using benzene and benzo(a)pyrene as indicators of contamination." Benzene and benzo(a)pyrene do not provide a complete picture to identify contamination. For example, metal and other constituents may not be co-located with these "indicator" chemicals. Please evaluate all COPCs independently.
9. Section 3.2, Page 3-1 – Listed items 2 through 6 - The project was designed to answer the principal study questions and address the decision statements not to determine if contamination was associated activities from the Brine Service Company or were the result of other historical activities that occurred at the Site. As Site owner and PRP of the Site, the Brine Services Group is responsible for addressing any COPCs that are identified. Please include analysis of all onsite metals.
10. Section 3.3, Page 3-2 – Benzene is not the only COPC in groundwater. Please list all COPCs identified in the groundwater. Please include all contaminant detections in the UTU and STU.
11. Section 3.5, Page 3-3 – Based on the results of the soil gas data, please evaluate indoor air vapor intrusion potential utilizing the recently finalized vapor intrusion guidance.
12. Section 4.1.5, Page 4-3 – An attenuation factor of 0.001 is typically used for a groundwater to indoor air assessment rather than a soil gas to indoor air adjustment. Based on the results of the soil gas data, please evaluate indoor air vapor intrusion potential utilizing the recently finalized vapor intrusion guidance. Indoor air sampling to directly assess indoor air concentrations at the Adult Video Store and the Robert's Equipment building may be warranted.
13. Section 4.2.3, Page 4-7 – Please remove the last sentence in the fourth paragraph, under "Subsurface Waste." Please discuss all contaminants identified in the subsurface soil that exceed screening levels.
14. Section 4.4.1, Page 4-18 – Please revise the statement, "cumulative carcinogenic site risk to an individual based on reasonable maximum exposure for both current and future land use is less than 1 E-04, and the non-carcinogenic HI is less than 1, action generally is not warranted unless there are adverse environmental impacts." to discuss the risk range that may be of concern. EPA may make risk management decisions within the 1E-04 to 1E-06 risk range. Risk results for all COPCs should be discussed in the results summary for any carcinogenic site risk exceeding 1 E-06, and a non-carcinogenic HI of 1.
15. Section 5.2.1, Page 5-3 – Aroclor 1260 and Aroclor 1254 are identified as having maximum concentrations over the screening level for surface and subsurface soil in Appendix A, however,

they are not listed as COPCs in Table 5-1. Please include all contaminants identified in the surface and subsurface soil that exceed screening levels.

16. Section 5.3.3, Pages 5-6 & 5-7 – Under TRRP, the human health exposure pathways that are complete or reasonably anticipated to be completed for Class 2 groundwater include ingestion of chemicals of concern and inhalation of volatile emissions in outdoor air from COPCs in groundwater-bearing units. Section 5.3.3 states that for the STU, the groundwater-to-ambient air pathway was not quantified. Please include the STU when evaluating Site vapor intrusion potential for the groundwater-to-ambient air pathway.
17. Section 5.3.4, Page 5-7 – TRRP defines sediment as non-suspended particulate material lying below surface waters. Under TRRP-24 – Determining PCLs for Surface Water and Sediment; media should be evaluated as soil where a water body is dry most of the year. Please evaluate areas of the East Ditch that remain dry for most of the year as soil.
18. Section 5.4.2, Page 5-10 – Based on the results of the soil gas data, please evaluate indoor air vapor intrusion potential utilizing the recently finalized vapor intrusion guidance. Indoor air sampling to directly assess indoor air concentrations at the Adult Video Store and the Robert's Equipment building may be warranted.
19. Section 5.5, Pages 5-17 through 5-19 – This section (and Table 9.1 in Appendix A) describes that areas with a cancer risk > 1E-04 or a HI > 1 generally warrant action under CERCLA. Under TRRP, a chemical representing a risk greater than the individual-chemical target risk of 1E-05 warrants a response (e.g., cleanup, control). For noncarcinogenic effects, a chemical representing a hazard quotient (HQ) greater than the TRRP individual-chemical target HQ of 1 warrants a response. The TRRP target cumulative excess lifetime cancer risk level is 1E-04 per medium, and target HI is 10 per medium. Under TRRP, the HI is not segregated by critical effect/target organ as may be done by EPA. As an example, the maximum mercury concentration detected on-site is 23 milligram/kilogram (mg/kg) and under TRRP; the Tier 1 $^{Tot}Soil_{comb}$ (30-acre source) for mercury is 3.3 mg/kg. Please revise as appropriate.
20. Section 6.1, Page 6-1 – Data for samples at a number of locations in the North Pit were not included in the risk assessment. The reason identified in the document for not including these sample locations was that they were not "associated with the North Pit." Please provide a detail summary of any COPCs detected in these samples and evaluate the risk. Regardless of whether they were associated with the North Pit, they must be included in the risk assessment because they are contaminants identified at the site. Brine Services is the current owner of this property and is responsible for any contamination regardless of the association with the North Pit soil. A discussion of all COPC's detected above screening level should be included in the report.
21. Section 10.2.1, Page 10-2 – The summary section should include information on all COPCs that exceed a risk of 1E-06 or an HQ of 1. Please include a discussion of in vapor intrusion evaluation for indoor workers the risk assessment conclusions bulleted list. Please also evaluate detected lead concentrations using the Adult Lead Model.
22. Section 10.3, Page 10-4 – The summary of exposure media should present all scenarios which exceed the 1 E-06 carcinogenic range and an HQ $\geq$ 1 for non-carcinogenic COPCs. Please revise.
23. Appendix I – Soil Gas Screening Criteria, Page 1 – Active soil gas samples collected were elevated. Please evaluate indoor air vapor intrusion potential utilizing the recently finalized vapor intrusion guidance. Indoor air sampling to directly assess indoor air concentrations at the Adult Video Store and the Robert's Equipment building may be warranted. If the Johnson-Ettinger model is used indoor air samples are recommended in the Adult Video Store and Robert's Equipment building to ensure that assumptions made in the model are reflective of empirical indoor air data. The indoor air data should evaluate all constituents rather than relying on TPH values. This may require indoor air sampling to verify the accuracy of the model and to more accurately characterize the attenuation factor for these two buildings. The evaluation for the two

buildings identified a risk in the 1E-05 risk range. Therefore, it is important to evaluate indoor air to ensure that the model is accurate. It is likely that there will continue to be elevated soil gas levels near these buildings so it is appropriate to thoroughly evaluate this route of exposure.

Draft Screening Level Ecological Risk Assessment (SLERA)

General Conditions:

1. To eliminate concerns over future use, please provide stronger documentation that the site will remain limited to commercial industrial use. Please document deed restrictions, zoning restrictions, property ownership, future plans, and any other information that strengthens the argument that the site will remain limited to commercial and industrial use.
2. Please provide more detailed justification with figures to show that the source of metals and polycyclic aromatic hydrocarbon (PAHs) in the north segment of the east ditch is offsite. This should include a figure showing all upstream concentrations and information on surface water flow.
3. If no observed adverse effects level (NOAEL) based hazard quotients (HQs) are greater than one but the lowest observed adverse effects level (LOAEL) based HQ is less than one the COPC cannot be eliminated for that receptor COPC pair. The starting point for developing a preliminary remedial goal (PRG) is the midpoint between these values. Please base the protective concentration for COPCs using the midpoint between the NOAEL-based HQs greater than one and the LOAEL-based HQ less than one. Please provide the midpoint between the two toxicity reference values (TRVs). Please add preliminary remedial goals (PRG) to the acronym and definition list.
4. Hazard indexes were not presented for measurement receptors. Please provide.
5. Risk to terrestrial plants, terrestrial invertebrates, and benthic invertebrates was not eliminated by food chain modeling in upper trophic receptors. The text appears to eliminate COPCs based on this analysis. Please discuss risk to these receptors in the summary and conclusions. Please also provide a discussion of the disturbed nature of the Site.
6. TRRP defines sediment as non-suspended particulate material lying below surface waters. Under TRRP-24 – Determining PCLs for Surface Water and Sediment; media should be evaluated as soil where a water body is dry most of the year. Please evaluate areas of the East Ditch that remain dry for most of the year as soil. If the habitat serves as both a terrestrial and an aquatic habitat, then the most conservative screening values should be utilized. If only soil values are going to be used, additional quantitative evidence to prove that the southern portion of the East Ditch is dry and never serves as an aquatic habitat will need to be presented. Field observations on the day of the site visit and subsequent intermittent observations during field activities are insufficient to classify the ditch as only terrestrial.

Specific Conditions

1. Section 2.1, Page 2-1 – This section includes a description of the surrounding areas in each direction with the exception of northeast which is Tule Lake, the receiving body for the East Ditch and the North Ditch. Please include Tule Lake in the description of the environmental setting.
2. Section 2.1.2, Page 2-3 – This section describes, “The maintained grassy areas were dominated by non-native grasses including Bermudagrass (*Cynodon dactylon*), guineagrass (*Urochloa maxima*), and slimspike windmill grass (*Chloris andropogonoides*) as well as Kleburg bluestem

(*Dichanthium annulatum*)." During Site visits for the ecological risk assessment, shortspike windmill grass as a dominant grass species in the grassy areas was not observed; however, slimspike windmill grass appeared prevalent. Please update accordingly. In addition, slimspike windmill grass is a native grass. Please revise so it is not included in the list of non-native species. Please correct the spelling for the name Kleburg bluestem to Kleberg bluestem. This section further describes, "Also within the grassy area were a few scattered shrubs/small trees including mimosa (*Albizia julibrissin*) and mesquite (*Prosopis glandulosa*)." According to the USDA Plant Database's county distribution map for *Albizia julibrissin*, this plant does not occur in Nueces County where the Site is located. The white leadtree (*Leucaena leucocephala*) was identified on Site. According to the USDA Plant Database's county distribution map, white leadtree is found in Nueces County. Please update all mimosa to white leadtree, as appropriate. Please update all "mesquite" to its proper name of "honey mesquite." Please update and correct throughout the document.

3. Section 2.1.3, page 2-3: Please update this section as described in specific condition #1 above.

   In the second paragraph, the East Ditch is described in this section as being concrete lined. Additionally, the paragraph describes numerous breaks in the concrete. Please provide a more complete description of the areas in the ditch that are partially lined and including the portions that are unlined.

   The first paragraph in this section describes, "Although narrow, the riparian corridor along the East Ditch contained shrubs and small trees including honey mesquite, white leadtree, and sugarberry (*Celtis iaevigata*) along its entire length." Update the name sugarberry to sugar hackberry.

   The second paragraph in this section describes, "Within the southern segment of East Ditch, upstream of the concrete-lined 'S' curve, the riparian corridor included green ash (*Fraxinus pennsylvanica*) and yaupon in addition to the species listed above." According to the USDA Plant Database's county distribution map for *Fraxinus pennsylvanica*, this plant does not occur in Nueces County where the site is located. However, the USDA Plant Database's county distribution map for Nueces County does show Mexican ash (*Fraxinus berlandieriana*), which is more likely what was growing in the riparian corridor. Please update accordingly. During Site visits for the ecological risk assessment, yaupons were not observed in the riparian corridor. Please double check this plant's identification and update accordingly.

   The third paragraph in this section describes, "The northern segment of the East Ditch contained water at the time of the site visit. In addition to the riparian species listed, retama (*Parkinsonia aculeate*), palmetto (*Sabel minor*), Johnson grass (*Sorghum halpense*), Kleberg bluestem, and guineagrass were also present in the riparian corridor." Please correct the spelling for the scientific name for retama from *Parkinsonia aculeate* to *Parkinsonia aculeata*, add dwarf to palmetto, correct the spelling for the scientific name for dwarf palmetto *Sabel minor* to *Sabal minor*, combine Johnson and grass to make one word, correct the spelling for the scientific name for Johnsongrass from *Sorghum halpense* to *Sorghum halepense*, and correct the spelling of the name Kleburg bluestem to Kleberg bluestem.

4. Section 2.5, Page 2-8, bullets 7 & 8 and Table 1 – Incorporating background values into screening values is not apprpropriate. This implies that background values are acceptable when background may have risk from natural or anthropogenic sources. Compare to screening values then compare exceedances to background values. Please utilize a statistical comparison of background values to

onsite values for EPA guidance on the use of background values. Please utilize a statistical comparison or to compare the 95 upper concentration limit (UCL) of background to the 95 UCL of site data.

5. Section 4.2.2, Page 4-3 – Mercury was identified in the East Ditch at levels above background and above ecological risk screening levels. Please include mercury in Table 24.
6. Section 5.0 and Section 8.0: The final Scientific Management Decision Point (SMDP) will be done by the EPA risk assessor and the EPA RPM after reviewing the material submitted by the Group. Please indicate that these are recommendations by the Group and that the final SMDP that will be developed by the EPA.
7. Section 6.3.2, Page 6-7 – From review of the various wildlife exposure assumptions listed in Table 32, the soil ingestion percentage for the American robin and the red-winged blackbird appear incorrect based on the reference cited. According to table note (d), the EPA's Ecological Soil Screening Guidance[1] was used as the information source, and the soil ingestion for the ground insectivore was assumed. The cited reference was actually last revised in April 2007. From Table 3 in the 2007 document, EPA selected the 90th percentile value as the most appropriate high-end point estimate value to use in the calculation of ecological soil screening level (SSL) values. For the woodcock (the ground insectivore), this value was 16.4% compared with the value of 12% assumed in the SLERA.

   The assumed food ingestion rate for the Texas indigo snake could not be duplicated. Please evaluate this value and make any dose and hazard quotient revisions that are necessary.

8. Section 6.3.3, Food Web Ingestion Modeling, Table D-2 – The follow listed comments apply to Food Web Ingestion Modeling Section and/or to Table D-2.

   Please provide access to the Pesticide Science journal article used for some uptake factors for plants and verify these the plant uptake factors.[2]

   The total PCB soil-to mammal uptake factor of 12.579 from the reference indicated in Table D-2 could not be verified. Please verify this value and provide a brief explanation how the value was derived based on the indicated reference.[3]

   Regarding the sediment-to-benthic invertebrate uptake factors, values for pesticides and some other organics were reported to be derived from Wong, et al., 2001.[4] Some values displayed in Table 2 were from that paper. For other Table D-2 values, it is unclear, particularly where the value of 3.9 was used for a number of the pesticides. Please clarify how the uptake factors were derived from this paper. Also it appears that the biota-sediment accumulation factor values in the paper are expressed on a wet-weight basis. If this is true, it results in an underestimate of the benthic tissue concentrations as all of the food chain calculations are based on dry weight

[1] U.S. Environmental Protection Agency. 2005. Guidance for Developing Ecological Soil Screening-Levels. OSWER Directive 9285.7-55. November 2003, Revised February 2005.

[2] Briggs, G., R. Bromilow, and A. Evans. 1982. Relationships Between Lipophilicity and Root Uptake and Translocation of Non-Ionized Chemicals by Barley. Pesticide Science. 13: 495-504.

[3] Lund, B.O., J. Orberg, A. Bergman, C. Larsson, A. Bergman, B.M. Backlin, H. Hakansson, A. Madej, A. Brouwer, and B. Brunstrom. 1999. Chromic and Reproductive Toxicity of a Mixture of 15 Methylsulfonylpolychlorinated Biphenyls and 3-Methylsulfonyl-2,2-bis-(4-Chlorophenyl)-1,1-Dichloroethene in Mink (*Mustela vison*). Environmental Toxicology and Chemistry 18(2): 292-298.

[4] Wong, C.S., P.D. Capel and L.H. Nowell. 2001. National-Scale, Field-Based Evaluation of the Biota-Sediment Accumulation Factor Model. Environ. Sci. Technol. 35: 1709-1715.

concentrations. Please evaluate this source and make any corrections to the dose calculations as necessary.

Many of the water-to-fish uptake factors were based on a correlation with the octanol-water partition coefficient (log K_{ow}). The model used (i.e. Southworth, et al., 1978[5]) was based on a model for daphnids specific to polycyclic aromatic hydrocarbons (PAHs). Please consider using a model specific to fish (i.e., Bintein, et al., 1993[6]; Veith, et al., 1980[7]; or others) and a larger group of organics. If a K_{ow} correlation approach is used, the uptake factor should be expressed on a dry weight basis to be consistent with the food ingestion rate.

Some of the water-to-fish uptake factors were based on values used in the CalEPA Air Toxics Hot Spot Program. The values as cited could be verified, but it was not clear if the bioconcentration factor (BCF) values were presented on a dry-weight or wet-weight basis. Please evaluate this source and make any corrections to the dose calculations as necessary. Additionally, generally looking at the Eisler papers or the ATSDR Toxicological Profiles as the source for a handful of BCFs, it could not be determined if the values were expressed on a dry weight or wet-weight basis and the value could not always be found specified in the referenced document. Please evaluate these sources and make any dose calculations that are warranted (i.e., if the referenced BCFs are wet-weight based). Also please indicate where specifically in the source document that the BCF value is presented. The same comments apply to the water-to-aquatic insect uptake factors.

The selected toxicity reference value (TRV) for avian exposure to endosulfan could not be confirmed. Please evaluate the indicated source and make any corrections that are necessary.

9. Section 6-4, Page 6-10 – The dose calculations for the mourning dove could not be verified. Please verify the calculations for all exposure areas and make any corrections that are appropriate.

   The dose calculations for the pocket gopher could not be verified. The discrepancy may be rooted in the calculations for the incidental soil ingestion pathway. Please verify the calculations for all exposure areas and make any corrections that are appropriate.

10. Section 6.5.4, Page 6-12 – The derived values for background numbers should be shown in this report (i.e., Texas-state median background concentrations (30 TAC 350.51(m)). When citing another report please provide more specific information such as section number, table number, or page number. A comparison to values on the RI table 17 does not appear to confirm these statements for all these COPCs. For example max value for selenium in east ditch south soils is 1.43mg/kg and the maximum background is 0.89 mg/kg.
11. Section 6.5.5, Page 6-14 – Conservative Analysis (Upper Trophic Level Receptors) raccoon and egret dose calculations could not be verified to the previously discussed questions regarding the benthic invertebrate (and amphibian) uptake factors and the possibility of using a different correlation equation for fish uptake. If any of the relevant uptake factors are revised, please revise the dose and hazard quotient calculations for these receptors.

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[5] Southworth, G.R., J.J. Beauchamp and P.K. Schmieder. 1978. Bioaccumulation Potential for Polycyclic Aromatic Hydrocarbons in *Daphnia pulex*. Water Research Vol 12:973-977. log BCF = (0.819 x log K_{ow})-1.146. Adjusted to dry weight assuming 80 % moisture.

[6] Bintein, S., J. Devillers, and W. Karcher. 1993. Nonlinear dependence of fish bioconcentration on n-octanol/water partition coefficient. SAR and QSAR in Environmental Research. 1(1): 29-39.

[7] Veith, G.D., K.J. Macek, S.R. Petrocelli, and J. Carroll. 1980. An evaluation of using partition coefficients and water solubility to estimate bioconcentration factors for organic chemicals in fish. Aquatic Toxicology, ASTM STP, 707, 116-129.

Conservative Analysis (Upper Trophic Level Receptors) – Table 33 indicates a diet for the egret of 5% water column insects, 20% benthic invertebrates, 70% fish, and 5% amphibians. This conflicts with the actual dose calculations in Appendix D which appear to limit the diet to 20% benthos and 50% fish. Please explain this discrepancy.

12. Section 6.6.1, Page 6-15 – The first paragraph describes justification given for eliminating several COPCs based on section 3.13 of TCEQ guidance. This is not sufficient. The TCEQ guidance describes further evaluation of impacts to receptors and critical habitat. A more comprehensive discussion of the disturbed nature of this area could be used to argue that acute exposure is more likely than chronic exposure. Evaluation of the risk from acute exposure along with a comprehensive discussion of the disturbed nature of this area and a convincing argument that the area will remain commercial, industrial could be used to eliminate some of these COPCs. This comment applies to other sections where this justification is used to eliminate COPCs. This includes page 6-16 and 6-17.
13. Section 6.6.2, Page 6-17 – The comments at the end of the paragraph on responsibility for selenium contamination are not relevant to the risk assessment. dentifying the source of contamination may be useful in developing remedial actions, if needed, but attributing responsibility is not the purpose of this document. If it can be shown that the source originates off site, or that onsite concentrations are less than background then this can be considered.
14. Section 6.6.3, Page 6-17, East Ditch Riparian Soil (South) - Less-Conservative Analysis – NOAEL hazard quotients (in parentheses) for the Indigo snake for the conservative analysis were greater than 1 for barium (1.7), copper (3.6), lead (3.1), selenium (3.7), and zinc (2.1). With the exception of selenium, please provide an explanation why the snake dose and hazard quotient calculations were not carried forward to this step for these constituents.
15. Section 6.6.4, Page 6-17, East Ditch Sediment (South) as Soil- Less-Conservative Analysis- Similar to the previous comment, NOAEL hazard quotients (in parentheses) for the Indigo snake for the conservative analysis were greater than 1 for barium (4.6), copper (4.1), lead (9.8), selenium (3.1), zinc (2-4), and 4,4'-DDT (1.3). With the exception of selenium, please provide an explanation why the snake dose and hazard quotient calculations were not carried forward to this step for these constituents.
16. Section 6.6.5, Page 6-17 & 18 – The justification for using the 0.15 dilution factor with groundwater to surface water concentration is not provided. Please see figure 7-1 of TCEQ RG366 and show all steps used to determine if a dilution factor can be used and how the dilution factor was calculated. Please also determine if there are temporal or seasonal changes in the dilution that should be used.
17. Section 6.6.5, Page 6-17 & 18, East Ditch Marine (North Segment) - Less-Conservative Analysis (Water Column Receptors) – Table 42 displays the surface water screening results where the maximum detected surface water concentration is compared to the chronic marine water quality criteria, along with a justification for removal of any COPC. Please consider the following comments related to surface water COPCs
    a. The table indicates that aluminum in surface water is not a COPC because it was detected upstream at high concentrations and it is not bioaccumulative. The maximum surface water concentration in the north ditch was 6.95 mg/L (Appendix B, pdf page 30) rather than the indicated Table 42 value of 2.11 mg/L. This exceeds the upstream (background) maximum concentration of 1.38 mg/L and the screening value of 0.1 mg/L. Additionally, TCEQ calculated a 95% UCL for aluminum in surface water of 2.793 mg/L. Absent more discussion, removal of this metal is not recommended.

b. The table indicates that cobalt in surface water is not a COPC because it was detected in Up River Road concentrations. The maximum surface water concentration in the north ditch was 6.62 x 10-3 mg/L. This exceeds the upstream (background) maximum concentration of 2.9 x 10-3 mg/L and the screening value of 1 x 10-3 mg/1. The Up River Road maximum concentration was 1.4 x 10·3 mg/L. Additionally, TCEQ calculated a 95% UCL for cobalt in surface water of 3.07 x 10·3 mg/1. Also, the groundwater maximum concentration (3. 7 x 10·2 mg/L) exceeds the groundwater-to-surface water protective concentration level (PCL) of 6.67 x 10·3 mg/L. This is based on the surface water marine criteria divided by 0.15 to account for dilution. Absent more discussion, removal of this metal is not recommended.
c. The table indicates that manganese in surface water is not a COPC because the concentration in surface water was similar to groundwater, and it was detected in background and in Up River Road samples. The maximum surface water concentration in the north ditch was 2.7 mg/L. This exceeds the upstream (background) maximum concentration of 0.33 mg/1 and the screening value of 0.1 mg/1. The Up River Road maximum concentration was 1.37 mg/1 and the groundwater maximum was 2.13 mg/1. Additionally, TCEQ calculated a 95% UCL for manganese in surface water of 1.046 mg/1, after removal of the maximum value which appeared to be an outlier. Absent more discussion, TCEQ does not recommend removal of this metal. If manganese is naturally elevated in groundwater, discussion of background groundwater concentrations of manganese would be relevant. Additional discussion related to manganese toxicity would also be relevant (i.e., an expansion of the discussion in Section 7-4.1).

18. Section 6.6.5 East Ditch Marine (North Segment) - Less-Conservative Analysis (Benthic Invertebrates) – Table 42 displays the sediment screening results where the maximum detected sediment concentration is compared to the midpoint between the benchmark and the second effects level (i.e., the TCEQ default benthic invertebrate PCL), along with a justification for removal of any COPC. Please consider the following comments related to sediment COPCs:
    a. The table indicates that barium is not a COPC in sediment. Although sediment concentrations were greater than the upstream background concentration (465 mg/kg), it was also detected in Up River Road samples (834 mg/kg maximum). The maximum sediment concentration in the north ditch was 4,730 mg/kg. TCEQ calculated a 95% UCL for barium in sediment of 2,271 mg/kg. Both values exceed the screening concentration of 547 mg/kg. Absent more discussion, removal of this metal is not recommended. Additionally, the screening value is indicated as a background number. Please describe how this was derived.
    b. The table indicates that manganese is not a COPC in sediment. Although sediment concentrations were greater than the upstream background concentration (616 mg/kg maximum), it was also detected in Up River Road samples (6,540 mg/kg maximum). The maximum sediment concentration in the north ditch was 2,530 mg/kg. TCEQ calculated a 95% UCL for manganese in sediment of 1,022 mg/kg. Both values exceed the screening concentration of 582 mg/kg. Additionally, the screening value is indicated as a background number. Please describe how this was derived. Absent more discussion, removal of this metal is not recommended.

19. Section 6.7 Summary, Page 6-17 & 18 – There is a statement on page 6-19 that there are no final COPCs for surface water or sediment. See previous comments 17 and 18. Please update as needed.

Tracking the opening discussion in Section 6.7, the site is in a developed industrial commercial area, and it is mowed and maintained. Additionally, much of the pit areas are covered by buildings, equipment, or non-vegetative cover such as asphalt or caliche base. This suggests that there is likely no significant ecological habitat present for soil exposure pathways. However, under the TCEQ Ecological Risk Assessment Program, the site itself would pass the soil exposure portion of the Tier 1 Exclusion Criteria Checklist. Soil as a source area for surface water and sediment pathways, should not be excluded. As a Superfund Site, soil exposure pathways should be evaluated as complete and significant. The site condition from the aspect of ecological exposure pathways for soil should be factored into risk management decisions.

Although the overall conclusion of Step 3a is that lead in North and South Pit surface soils and selenium in North Pit surface and subsurface soils are present at concentrations that could lead to potential risk for birds and mammals, this discussion generalizes that the hazard quotients are generally low (between 1 and 5) and constitute a low potential risk for these receptors. The discussion theorizes that the source of selenium and lead is potentially related to on-going non-site related anthropogenic activities and historical uses of an industrial and commercial nature, and not to historical Brine Service Company operations. Given the activities and infrastructure on-site combined with routine mowing, it has already been stated that this site would not require an ecological evaluation for soil exposure pathways under the TRRP rule (except as a source medium for surface water and sediment). Please determine if elevated metals in the top two feet of soil require a response action given the site conditions.

20. Section 7.5, Pages 7-17 &18 – Many of the justifications listed in the bullet points are not supported by the data or are not relevant to the ecological risk assessment. Attributing responsibility is not the goal of this risk assessment. The goal is to determine risk to ecological receptors.
21. Section 8.0 & Section 9.0, Page 9-1 – This SLERA concludes that additional assessment of ecological exposures of COPCs in sediment, surface water and soil at the site is not warranted. This is conclusion is premature. The conclusions will likely need extensive revision following revisions to the SLERA based on conditions in this letter. The conclusion that there are no impacts to the north section of the east ditch is not supported. All food chain modeling (screening-level trophic analysis (Step 3a)) results that exceed a NOAEL HQ of one need to be evaluated and updated. Please evaluate and update risk to plants and invertebrates from COPCs that exceed screening values.
22. Tables 27 and 28 – Please review Tables 27 and 28 for accuracy and completeness. The list of COPCs shown in Table 27 and Table 28 is incomplete. A blank line is present in the COPC column for each table. Please revise accordingly
23. Table 28 – It appears that the Up River Road sediment name is used for East Ditch (north segment). Please be consistent in names used for areas.
24. Tables 35-41 – Hazard indexes were not presented for measurement receptors. Please revise.
25. Table 38 – The mercury HQ for the Texas indigo snake is shown as 8.1x10-3, but the text is in bold. Please verify this number.
26. Table 42 – The source of the sediment marine PCL value is not clear. Please identify the source for this number and explain how it is used in this comparison.
27. Table 42 notes: A comparison between the max values, background, and screening benchmark shows that many COPCs that are shown in the notes as eliminated still exceed the benchmark and background values. Some other reasons given for elimination of COPCs are not supported. Please revise the notes section and carry the COPCs forward or provide a more detailed justification for

elimination. A review of the groundwater COPCs may be needed if the use of a dilution factor is not properly justified. This includes the following:

a. Aluminum: The justification for excluding aluminum as a COPC is not adequate. Upstream concentrations are lower than on site concentrations so this is not a valid reason for exclusion. Notes say not a COPC in sediment but table 28 shows as COPC in surface water.
b. Arsenic: The notes indicate arsenic is not a COPC in sediment but table 28 shows it as COPC in sediment. Detections and maximum surface water levels are not shown. Maximum measured sediment levels are greater than the screening criteria and background. Please clarify.
c. Manganese: Manganese results exceed background and the benchmark value in surface water and sediment. More information is needed on background to show source originates off site. Please clarify.
d. Barium: Sediment result exceeds background and the benchmark value. No valid reason is presented to exclude this as a COPC in sediment. Barium is shown as COPC in Table 28. Note says "trophic risk" then says "not a COPC." Please clarify.
e. Cadmium: Sediment result exceeds background and the benchmark value. No valid reason is presented to exclude this as a COPC in sediment. Please clarify.
f. Cobalt: Sediment result exceeds screening criteria and offsite concentrations. Cobalt is shown as COPC in sediment and water in Table 28. Please clarify.
g. Bis(2-ethylhexyl)phthalate: Sediment result exceeds background and the benchmark value. Notes says "not a COPC in water or sediment" but shown as COPC in Table 28 Please clarify.
h. Copper: Sediment result exceeds background and the benchmark value. Please clarify.
i. Lead: Note says not a COPC but food chain modeling shows risk. Please clarify.
j. Mercury: Sediment result exceeds background and the benchmark value. Please clarify.
k. Manganese: Sediment concentration for manganese is higher than background and the screening level. Note says "trophic risk" then says "not a COPC." Please clarify. More information is needed to show it comes from offsite if this is the case.
l. Zinc: Sediment result exceeds background and the benchmark value. Please clarify.
m. Alpha-chlordane: In notes section, says there is detection in up river road surface water but in chart says there is not detected (ND). Please clarify.

28. Table 42 notes – The number of COPCs in Table 42 is 41, and the number in Table 28 and Table 30 is 50. Chromium, silver, and pentachlorophenol appear to be missing. 1,1-biphenol, 2-nitroaniline, 4-6 dinitro-2-methylphenol, 4-nitrophenol, bis(2-chloroisopropyl)ether, and n-nitrosodi-n-propylamine are marked as "not a site COPC." Please include all COPCs in the tables and provide a detailed (not general as in "not a COPC") justification for elimination.
29. Table 42 notes: Many COPCs are eliminated based on detection frequency. This is usually permissible if the detections are in less than 5% of samples. If the number of samples is less than 20 (needed to show 1 sample is less than 5%) or if number of detections is greater than 5% elimination may not be permitted.
30. Table 43 – Please clarify why the results in table 43 differ from the results in table 39. Please describe any adjustments made that alter the results.
31. Table 44 – Please clarify why this table is needed. PAH values exceed background but appear to be coming from an offsite source. Please document the source of the PAHs in greater detail. This table is not needed if this can be done.

32. Appendix C – Section 2.3 refers to ecotoxicity profiles having been prepared for each final ecological COPC in the SLERA and documented in Appendix C. Appendix C was not made available for review. Please append Appendix C to the SLERA.